

REVISIONAL NOTES ON AUSTRALIAN *CARABIDÆ*.

BY THOMAS G. SLOANE.

PART I.

Tribes *Carabini*, *Pamborini*, *Pseudozenini*, *Clivini*; and the
Genus *Nebriosoma*.

Subfamily **CARABINÆ**.

*Middle coxal cavities not entirely enclosed by the sterna, the
epimeron of the mesosternum attaining the coxa.*

The following table will enable the tribes found in Australia
to be recognised:—

- i. Body not pedunculate, bases of prothorax and elytra in contact.
Prosternum with anterior coxal cavities open behind.
Anterior tibiæ with spurs terminal, outer apical angle not prolonged.
Mandibles edentate, transversely rugosæ.....Tribe i. **CARABINI**.
Anterior tibiæ with inner spur above outer, outer apical angle pro-
longed. Mandibles dentate, smooth.....Tribe ii. **PAMBORINI**.
Prosternum with anterior coxal cavities closed behind.
Elytra striate on disc, reflexed lateral border entire. Posterior coxæ
contiguous.....Tribe iii.? (Genus *Nebriosoma*).
Elytra costate, reflexed lateral border interrupted near middle of
length. Posterior coxæ separated... ..Tribe iv. **PSEUDOZENINI**.
- ii. Body pedunculate, bases of prothorax and elytra remote. (Anterior
tibiæ with outer apical angle prolonged).. ..**BIPARTITI**.
Ligula small and prolonged, the tip narrow and bisetose; paraglossæ
free, small, narrow, pointed. Base of maxillæ not covered by mentum.
.....Tribe v. **CLIVININI**.
Ligula broad, corneous; paraglossæ corneous, ciliate at apex. Mentum
broad and concealed at sides base of maxillæ... ..Tribe vi. **SCARTINI**.

Tribe i.—Carabini.

Genus CALOSOMA.

Weber, Obs. Ent. i. 1801, p. 20.

Table of Australian Species.

Under surface with at least the sternal parts and sides of anterior ventral segments viridescens; prothorax and elytra bright green.....	<i>C. schayeri</i> , Erichs.
Under surface nigro-piceous; elytra nigro-æneous (<i>vide</i> Hope).....	<i>C. australe</i> , Hope.
Under surface bright green; elytra cupreous with narrow green margin.....	<i>C. walkeri</i> , Waterh.

Note.—*C. schayeri*, = *C. curtisi*, Hope, = *C. grandipenne*, Casteln., is widely spread throughout Australia, and also occurs in Tasmania; I have seen it from Central Australia (Finke River), New South Wales, and Victoria; de Castelnau records that (amongst other localities) he had it from Queensland (Flinders River), South Australia (Adelaide) and Swan River.* *C. australe* is unknown to me; according to Castelnau it is very rare, and is found "towards Cooper's Creek in the central part of the continent"; Mr. Masters gives the habitat as "Duaringa, Gayndah and Cooper's Creek, Queensland." *C. walkeri* is a distinct species. I have a specimen ticketed King's Sound; Mr. Waterhouse's localities are Roebuck Bay and Swan River. It may be noted that Horn has said that the prothorax of the members of the tribe Carabini has two marginal setæ on each side,† but I have not found any marginal setæ in the specimens of Australian *Calosoma* which I have examined.

* Trans. Roy. Soc. Vict. 1868, viii. p. 99. Mr. Masters in his Catalogue does not record it from Western Australia, so that I doubt whether it is found on the Swan River.

† Trans. Am. Ent. Soc. 1881, ix. p. 108.

Tribe ii.—Pamborini.

Genus PAMBORUS.

Latreille, Règn. Anim. iii. 1817, p. 198; Monogr., Gory, Mag. Zool. 1836; Notes, Chaudoir, Rev. & Mag. Zool. 1869.

Callimosoma, Hope.*

When defining the tribe Pamborini Dr. Horn said the prothorax has "a setigerous puncture at middle of sides and another near the hind angle."† This observation is accurate for the posterior puncture, but otherwise only applies to *P. guerini*, *P. brisbanensis*, and *P. pradierei*; *P. guerini* has sometimes a second setigerous puncture about half-way between the one at widest part and the anterior angle. In *P. macleayi* the number of marginal setæ on the anterior part of the sides varies; four specimens are before me (all from Dunoon on the Richmond River, N.S.W.); one of these (♀) has only one setigerous puncture at the widest part on each side; the other three (♀ 2, ♂ 1) have the anterior part of the prothorax with two widely placed setigerous punctures on one side and three on the other (the distance between these punctures shows that the presence of the extra punctures is not due to the duplication of the ordinary single puncture, though the duplication of such punctures is common throughout the family Carabidæ). *P. alternans*, *P. morbillosus*, *P. viridis* and *P. opacus* have always a puncture at the widest part, and in addition several others forward from it. In *Pamborus* the apex of the abdomen is truncate in the ♂ and rounded in the ♀; the sexes are thus readily distinguished from one another. The species of *Pamborus* are found in the coastal districts of Eastern Australia, from about the Shoalhaven River in the south to Cairns in the north; *P. viridis* extends inland in New South Wales to the Canoblas Mountains near Orange, and to Coonabarabran.

* *Callimosoma*, gen. ined., was proposed by Hope for *Pamborus guerini* but has not been adopted.

† Trans. Am. Ent. Soc. ix. 1881, p. 109.



Table of Species.

- A. Elytra with eight large costiform interstices on each.
- B. Prothorax with marginal channel and lateral basal impression uniting in a concavity at each posterior angle.
- c. Elytra with eighth interstice wide, its summit even in middle of length.
- d. Elytra with fifth and seventh interstices more or less catenulate (seventh greatly interrupted)..... $\left\{ \begin{array}{l} P. alternans, Latr. \\ P. morbillosus, Boisd. \end{array} \right.$
- dd. Elytra with seventh interstice not interrupted....*P. viridis*, Gory.
- cc. Elytra with eighth interstice narrow, its summit crenulate or serrate.....**P. opacus*, Gehin.
- BB. Prothorax with lateral basal impressions separated posteriorly from marginal channel by a convex space.
- E. Elytra with intercostal spaces sulciform, third, fifth, and seventh costa interrupted (catenulate).....*P. macleayi*, Casteln.
- EE. Elytra with intercostal spaces lightly raised and forming narrow ridges with a closely set row of punctures on each side (prothorax with sides 2-setose)...*P. brisbanensis*, Casteln.
- AA. Elytra with fifteen narrow carinate interstices on each.
- F. Prothorax long (hardly broader than long), elytra with edge of reflexed border even.....†*P. pradierei*, Chaud.
- FF. Prothorax short, elytra with reflexed border bearing a few widely placed raised serrations.*P. guerini*, Gory.

PAMBORUS ALTERNANS, Latreille.

Enc. Méth. viii. p. 678; Déj., Spec. ii. p. 19; Chaud., Rev. Mag. Zool. 1869, p. 65.

P. elongatus Gory, Mag. Zool. 1836, p. 166.

P. viridiaureus, Macl., Proc. Linn. Soc. N.S.W. 1893, viii. p. 409.

Chaudoir (with Gory's type in his possession) united *P. elongatus* with *P. alternans*. I place *P. viridiaureus*, Macl., under *P. alternans*, for though it may be regarded as a subspecies, I cannot differentiate it from *P. alternans*. Macleay seems to have relied particularly on the elongate prothorax to characterise *P.*

* *Hab.*—Queensland: Cairns (Froggatt), Herbert River and Cairns (Dodd; Coll. Sloane). I have identified *P. opacus* from Gehin's description.

† *Hab.*—N.S.W.: Bellinger River; one specimen given to me by Mr. W. W. Froggatt. The exact habitat has not been previously recorded.

viridiaureus, but the shape of the prothorax is variable in *P. alternans*. The specimen in my collection with the most elongate prothorax is from Ourimbah, south of Newcastle; in this characteristic it surpasses specimens sent to me from Brisbane by Mr. R. Illidge under the name of *P. viridiaureus*, Macl., and identified by me as that species by comparison with the type in the Macleay Museum.

PAMBORUS MORBILLOSUS, Boisd.

Voy. Astrol., Zool. ii. 1835, p. 27; Gory, Mag. Zool. 1836, p. 167.

P. cunninghami, Casteln., Etud. Ent. 1835, p. 156; Chaud., Rev. Mag. Zool. 1869, p. 65.

When dealing with this species Chaudoir had in his possession Gory's collection, including the type of *P. cunninghami*, Casteln., which he placed as a synonym of *P. morbillosus*. I translate his remarks as follows:—The type of *morbillosus* which I possess is closely allied to, and perhaps only a variety [of *P. alternans*]; however, I must note that it is smaller, the prothorax more rounded on the sides, which makes it appear more narrowed behind, the elytra are shorter, more convex, and my specimens are of a bronzy-copper colour which I have never seen in *P. alternans* or *P. elongatus*.

Chaudoir's remarks apply to specimens in my collection given to me by Mr. R. Illidge as from Dalveen, Queensland (near the New South Wales border), and also to another specimen given to me by Mr. Froggatt as from the Bellinger River, N.S.W.

Tribe iii.—?

Genus NEBRIOSOMA.

NEBRIOSOMA FALLAX, Castelnau.

Trans. Roy. Soc. Vict. 1868, viii. p. 179.

I have seen the type (the only specimen as yet recorded) of *N. fallax* in the Howitt Collection, and have the following insufficient note on it. Mesepimeron reaching coxa, head with one supraorbital puncture, prothorax with no lateral seta near basal

angles, elytra with reflexed border not interrupted, posterior coxæ contiguous. These features evidently prevent its being placed in the tribe Pseudozænini, and I hesitate to refer it to the tribe Migadopini—thereby bringing a new tribe into the Australian fauna, an action which would be unwarranted on such doubtful data. I therefore leave it as a genus of uncertain position.

Tribe iv.—**Pseudozænini.**

Mystropomini, Horn, Trans. Am. Ent. Soc. ix. 1881, p. 116.

The genus *Pseudozæna* from New Guinea and the Malayan Archipelago must be referred to Horn's tribe *Mystropomini*, and being the oldest genus of the tribe, should give the tribal name. In his definition of the tribe Horn has said, "thorax without marginal setæ"; this is erroneous; *Mystropomus* has the prothorax with the lateral channel plurisetose, the setæ extending from near the anterior angle to the basal angle. In regard to the supra-orbital setæ of the head, Horn said that in *Mystropomus* there are two, but this seems to be misleading, for there are several setæ rising from pores on each side of the head above the eyes. I note that in *Mystropomus* the male has the anterior femora armed beneath at about the basal third with a small dentiform prominence. A somewhat similar feature may be noticed in the male in the genera *Lychnus*, *Chlænius* (some species), *Rhæbolestes* and *Ænigma*. *Mystropomus subcostatus*, Chaud., ejects an acrid and explosive fluid like the bombardier beetles (*Pheropsophus*) and the Paussidæ (*Cerapterus*).

BIPARTITI.

Latreille, Fam. Nat. 1825.

The Latreillian name *Bipartiti* may be revived with advantage for that division of the Carabidæ to which Dr. Horn, following modern usage, attributed the tribal name of *Scaritini*, but which seems to me to contain material for two tribes of a value equivalent to that of most of the recognised tribes among the Carabidæ.*

* *Vide supra*, Table of Australian Tribes.

Note on the striation of the elytra.—Among the Bipartiti the species with striated elytra have seven striæ and a lateral furrow; while in the Carabidæ generally the normal number of striæ is eight and a lateral furrow. In the Bipartiti the lateral channel is wide, and it is evident that the usual eighth stria and ninth interstice are lost in it. This is a character of the highest importance, which I believe to be peculiar to the Bipartiti.

PHYLOGENY (*with special reference to the Australian Pasimachides*).

There seem sufficient reasons (*e.g.*, form of buccal fissure, intermediate tibiæ, concavities of lower side of peduncle) for placing the subtribe Scaritides between the tribe Clivinini and the subtribe Pasimachides; but, whether each of these latter groups represents a departure in a different direction from a central Scaritid stock, or whether the line of descent is rather *Clivina-Scarites-Pasimachus*, is a question on which the insufficiency of my knowledge of many varied component parts of the Bipartiti prevents an opinion being offered here.

In regard, however, to the Australian Pasimachides, there seem to be grounds for supposing them to be descended from a Scaritid ancestral form. The following evidence is offered in support of this hypothesis:—(1) The point of contact between the submentum and the paragenæ is indicated by a line, more or less distinct, which shows the division of these parts (as in the Scaritides) to be more primitive than the unified form. (2) The Australian Pasimachides are all apterous, and it seems certain that in the Carabidæ such apterous forms must have had winged ancestors (winged forms are common among the Scaritini). I cannot imagine it possible for the descendants of an apterous beetle with connate elytra to vary in the direction of acquiring wings. It is evident that the submentum and paragenæ had become contiguous, and the wings had been lost before the origin of any of the present Australian *Pasimachides*.

I believe that the primitive form from which the Carenums are derived had the elytra punctate-striate. This is shown by

some forms still being striate (*e.g.*, *Carenarchus*),* or with the elytra punctate (*Laccoscaphus*);* while in the smoothest *Carenums* faint, but distinct, rows of punctures may be brought out on the elytra by a lengthened immersion in alcohol. If the elytra of one of these smooth *Carenums* be detached and looked at towards the light the presence of hidden honeycombed lines beneath the smooth dorsal derm is disclosed. There is also reason to suppose that the ancestors of the *Carenums* had many setigerous pores along the lateral margins of the prothorax (*e.g.*, *Trichocarenum*), and on the elytra (*e.g.*, the submarginal setigerous punctures in some *Scaraphites*, *Neocarenum* and *Trichocarenum*).

CHÆTOTAXY (*with special reference to the Australian Pasimachides*).

In his 'Monograph of the Carabidæ of the Hawaiian Islands,' Dr. Sharp has attributed such a high importance to chætotaxy† for taxonomic purposes that some observations I have made on this subject in the group *Carenides* may not be without interest. In the first place it may be noted that in Dr. G. H. Horn's monumental memoir on the Carabidæ published in the year 1881, the following setæ are noticed as worthy of attention among the Carabidæ:—(1) The supraorbital setæ of the head, (2) a seta near the tip of the basal joint of the antennæ on the upper side, (3) the lateral setæ of the clypeus, (4) the setæ of the anterior margin of the labrum, and also (5) of the ligula, (6) a seta in the outer scrobe of the mandibles, (7) the "post-dental" setæ of the mentum, (8) the setæ of the penultimate joint of the labial palps, (9) the lateral setæ of the prothorax, (10) the dorsal setæ of the

* The generic names *Laccopterus* and *Epilictus* now in use among the Australian *Pasimachides* are preoccupied; *Laccoscaphus* and *Carenarchus* are, therefore, proposed to replace them.

† "From the chitinous skeleton there stand out hairs that in some cases penetrate the chitin and are connected with a special nerve, thus forming a simple but effective set of sense-organs. The description of the ways in which these hairs are arranged is called chætotaxy." Dr. D. Sharp in 'Fauna Hawaiensis,' Coleoptera Caraboidea, Vol. iii. Pt. iii. p. 182. (Cambridge, 1903).

elytra, (11) the lateral ocellate setigerous punctures of the elytra, (12) the ambulatorial setæ of the ventral segments, (13) the setæ at apex of the last ventral segment. The only other setæ, as far as I know, which had previously been recognised as of classificatory importance, but which are not noted above, are the setæ of the prosternal and mesosternal declivities.

Among the Carenides the number, position, or absence of the following setæ is of considerable classificatory importance:— (1) The setæ of the penultimate joint of the labial palps; (2) a seta at basal angles of prothorax (some species of *Scaraphites* only); (3) the ocellate punctures at base of elytra (present throughout the Carenides except in the genus *Scaraphites*); (4) the subapical seta of the lower edge of the posterior side of the anterior femora (present in the typical Carenums, but absent in *Neocarenum*, *Neoscaphus*, and *Carenidium*)—this last character loses its value to a great extent in the genera *Scaraphites* and *Euryscaphus*; (5) the seta near the anterior margin of the posterior coxæ (the presence or absence of this seta has some value in the Carenides). I give below some remarks on the setigerous punctures of the posterior face of the anterior femora and of the posterior coxæ; these characters seem to have received attention first from me;* they evidently have an importance that cannot be overlooked.

I would draw attention to the fact that most of these sense-setæ are subject to duplication, when a normally single seta is replaced by two (each in a separate pit) placed close together. It should be noted here that in *Carenum subcyaneum*, Macl., all my specimens have (on each side) the anterior femora with two closely placed subapical setigerous punctures on the lower margin of the posterior face, being the only case known to me where such duplicate setæ are evidently the normal form.

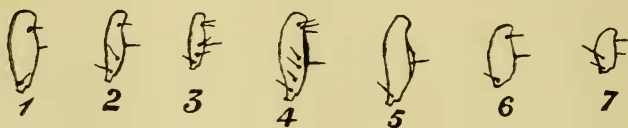
* These Proceedings, iii. (2), 1888, p. 1102.

Chaudoir in his description of *Monocentrum grandiceps* (Ann. Soc. Ent. Belg. 1869, p. 147) says, "aux cuisses antérieures on remarque quelques points pilifères," but he seems to have attached no importance to these punctures.

With my slight knowledge on the subject of chætotaxy I feel unable to place upon the different tactile setæ any fixed taxonomic value, nor can I attribute to any of them among the *Bipartiti* the extreme importance which Dr. Sharp has given to the thoracic setæ among the Hawaiian Carabidæ.

The Setigerous Punctures of the Anterior Femora and Posterior Coxæ.

(1) *The anterior femoral setæ.*—The normal number of setigerous punctures on the posterior face of the anterior femora in the *Bipartiti* must be taken to be three, placed as follows: one very near the trochanter on the middle of the posterior face of the femora (*basal seta*); one near the lower edge varying in position from about basal third to middle of length of femur (*median seta*)—this seta would often be more accurately described as being on the posterior edge of the lower face of the femur; and one towards the apex near lower edge, about the middle of the apical sinuosity of the lower side of the femur (*subapical seta of lower edge*). When all three setæ are present the femur may be said to be 3-setose; this is the case in *Scarites*, *Geoscaptus*, and *Clivina*. The median and basal setæ seem to be of universal occurrence throughout the tribe (though I have not been able to distinguish either of them in my unique specimens of *Neocarenum elongatum* and *N. blackburni*). The presence or absence of the subapical seta has an important taxonomic value in the typical *Carenum*s; I have never found it in a species of *Neocarenum*, *Carenidium*, or *Neoscaphus*, nor have I ever found it absent (except in *Carenum*



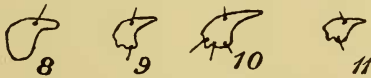
Figs. 1-7.—Anterior Femora to show Setæ of Posterior Face.—1. *Carenum interruptum*; 2. *C. dispar*; 3. *C. subcyaneum*; 4. *C. tibiale*; 5. *C. tumidipes*; 6. *Geoscaptus levissimus*; 7. *Clivina procera*.

tumidipes) in *Carenum*, *Eutoma*, *Philoscaphus*, *Laccoscaphus*, and *Teratidium*. The above figures indicate the normal position

of these anterior femoral punctures and some variations which I have noted.

(2) *The posterior coxal setæ*.—The primitive form in the Carabidæ is probably to have the posterior coxæ with three setæ, viz., one near the anterior margin in a line behind the centre of the middle coxal cavity (*anterior seta*); one placed longitudinally behind the anterior seta towards the apex of the coxa (*posterior seta*); and one near the inner margin of the coxa between the insertion of the trochanter and the point at which the two coxæ approximate (*inner marginal seta*). Among the Australian Bipartiti the posterior coxæ are 3-setose in the genus *Geoscaphus* only; the anterior and posterior setæ always occur in the Clivinids; while in the Carenides the posterior seta is lost, though in *Trichocarenum*,* *Teratidium* and *Monocentrum* a punctiform scar is found in its position, but the seta is wanting (only in a single specimen of *Scaraphites lenæus* have I found the posterior seta present in a Carenid). Often among the Carenides the posterior coxæ are without setæ (e.g., *Neocarenum*, *Neoscaphus*, *Carenarchus*, *Carenidium gagatinum* and closely allied species).

The subjoined figures show the setigerous punctures of the posterior coxæ in the three divisions of the Australian Bipartiti.



Figs. 8-11.—Posterior Coxæ.—8. *Carenum interruptum*; 9. *Geoscaptus lavissimus*; 10. *G. crassus*; 11. *Clivina procera*.

Probably some use could be made of other tactile setæ of the legs among the Carenides, e.g., those of the trochanters, middle and posterior femora, &c.; but any attempts I have made to utilise these have yielded only negative results, though the presence or absence of a setigerous puncture on the posterior trochanters seems not unimportant in the genus *Carenum*.

* In *Trichocarenum castelnaui*, Sloane, alone among the Carenides have I noted the presence of the inner marginal seta.

Tribe v.—*Clivinini*.

TABLE OF AUSTRALIAN GENERA.

Peduncle without lateral concavities beneath.....	CLIVINARCHUS.
Peduncle with a concavity on each side.	
Prothorax not globose.	
Intermediate tibiæ very wide, outer edge crenulate, strongly bidentate towards apex; posterior tibiæ stout, outer edge strongly and unevenly crenulate.....	PLATYSPHYRUS.
Intermediate tibiæ with a sharp spine externally above (rarely at) apex; posterior tibiæ slender, external side even.....	CLIVINA.
Prothorax globose.....	DYSCHIRIUS.

PLATYSPHYRUS, n.g.

Head short, convex; front strongly biimpressed; eyes hemispherical; two supraorbital setigerous punctures on each side. *Antennæ* short, reaching to about middle of prothorax, rather slender; two basal joints cylindrical, long, equal, glabrous, first stout, second slender, about length of third with half fourth; joints 3-11 porose, hardly pubescent, short, third and fourth subcylindrical, 5-11 slightly compressed. *Mentum* large, longitudinally raised in middle, apex of raised median part forming a short wide emarginate prominence at bottom of sinus, this shallow; lobes short, rounded, sides not concealing base of maxillæ. *Labium* short, widely rounded at apex. *Maxillæ* with inner lobe short, strongly hooked at apex; inner side with two strong prominent teeth. *Palpi*: maxillary stout; penultimate joint long, incrassate; apical joint oval, hardly more than half length of penultimate: labial thick; penultimate joint not short, bisetigerous in front; apical joint elongate-oval, hardly as long as penultimate. *Clypeus* with "wings" lightly advanced on each side of labrum, narrow, obtuse at apex; median part truncate between "wings." *Mandibles* short, not toothed on inner side; outer side roundly arcuate; upper surface striolate. *Prothorax* convex, widest at posterior angles; border reaching base; two marginal setigerous punctures on each side as in *Clivina*. *Peduncle* with lateral concavities of lower side deep, impunctate; scutellum wide, triangular. *Elytra* oval, strongly convex, striate

as in *Clivina*, fourth and fifth striæ confluent at base; third interstice 4-punctate. *Ventral segments* transversely sulcate. *Legs* stout, fossorial.

Differs from *Clivina* by maxillæ short, toothed on inner side (not densely hirsute); mentum convex, bottom of sinus distant from base, sinus shallow; labium wide at apex; form of tibiæ, &c. It has no resemblance or apparent close affinity to the genus *Clivinarchus*.

PLATYSPHYRUS TIBIALIS, n.sp.

Robust, elongate, black.

Head rather large (4 mm. across eyes); frontal impressions deep, elongate, rugulose; space between them wide, convex; orbits lightly enclosing eyes at base, their postocular part small, not nearly as protuberant as eyes, rising abruptly from head. Prothorax broader than long (6.3 × 7 mm.), widest at posterior angles, roundly narrowed to apex (4 mm.), convex (lightly so longitudinally, strongly so transversely), lightly declivous to sides, strongly declivous along basal curve; anterior margin truncate behind head, with anterior angles slightly advanced, wide, obtuse; basal curve short; lateral border thick, reflexed; lateral channel wide, widest and not interrupted at posterior angles, very narrow near base; basal margin entire, not reflexed nor divided from pronotum by a channel; posterior marginal puncture at posterior angle on inner side of lateral channel; median line lightly impressed, reaching base; lateral basal impressions short, strongly impressed, placed above basal declivity in front of basal angles. Elytra oval (14.5 × 7.7 mm.), convex, strongly declivous to peduncle, truncate at base, widely rounded at apex; striæ lightly impressed, finely crenulate, first and second confluent at base and rising from an umbilicate puncture at base of first interstice, seventh entire, hardly lighter than others; interstices depressed, lightly convex on apical declivity, eighth narrow, roundly convex (not carinate) near apex; lateral border narrow, reflexed on basal half, becoming very wide and thick posteriorly, reaching to apex and to base of fourth interstice. Prosternum convex, declivous to anterior margin, transversely striolate; intercoxal part very

wide, its declivity vertical, rounded—but becoming wide and flat near base. Mesosternum with epimera very wide and reaching coxæ. Metasternum small, very short between intermediate and posterior coxæ; episterna short, narrowed posteriorly, a strongly impressed reniform longitudinal fovea on middle of posterior half. Femora stout; anterior compressed, lower and anterior sides flattened, posterior side convex, upper side almost semicircular; posterior femora with lower side strongly dilatate at apex of trochanters. Anterior tibiæ stout, wide; apical prolongation wide with apex obliquely truncate; outer edge deeply trisinate with a wide explanate projection above the two anterior sinuities; inner apical spur long, slender, acute; upper internal spur long, slender, curved: intermediate tibiæ wide, with two strong compressed external teeth towards apex; margin explanate and strongly crenulate above upper tooth; posterior tibiæ stout, incrassate; an external tooth at apex; outer edge unequally and shortly denticulate: anterior tarsi narrow; basal joint longer than four succeeding joints together, reaching beyond apical prolongation and paronychium of tibiæ; joints 2-4 small, subequal; middle and posterior tarsi similar, but joints 2-4 more elongate—in middle tarsi as long as, in posterior longer than first joint. Length 24.5, breadth 7.7 mm.

This remarkable species is quite isolated among the Australian Clivinides, but seems more related to *Clivina procera*, Putz., than to any other species known to me. The elytra are essentially those of a *Clivina* allied to *C. procera* (each elytron is 7-striate with a wide marginal channel closely set with umbilicate punctures). *C. procera* has somewhat similar maxillæ, with closely set strong bristles on inner side, but without the teeth of *Platysphyrus*.

Genus CLIVINA.

Latreille, Consid. Génér. 1810, p. 156; (Revision), Putzeys, Ann. Soc. Ent. Belg. x. 1866; (Supplement), Putzeys, *ibid.* xi. 1868; (Australian Species), Sloane, Proc. Linn. Soc. N.S.W. xxi. 1896.

It is proposed now to review the Australian species of the genus *Clivina* on the basis of my former "Revision," merely indicating any alterations which seem to me needful in their classification or nomenclature, and recording such new species as have come into my possession.

In July, 1896, (the date of my "Revision") the number of recognised Australian species of the genus *Clivina* (using the genus in the wide sense which I have adopted) was eighty-five, and three varieties. Since 1896, the Rev. Thos. Blackburn has described one species, *C. eyrensis*, which, however, he now regards as a synonym of *C. denticollis*, Sl.;* and he has reduced *C. adelaidæ*, Blkb., to a synonym of *C. obliquata*, Putz. I now regard *C. sulcicollis*, Sl., as a species distinct from *C. puncticeps*, Putz., so that the number of species stands as eighty-five, and two varieties. It is now suggested that six of these must be regarded as synonyms, the number being thus reduced to seventy-nine species, to which I have to add eleven new specific and one varietal names. The total number of species in the Australian list at the present date may be taken to be ninety species and three named varieties.

In this connection I wish to place on record the following opinions:—

C. suturalis, Putz.—It is my belief that *C. verticalis*, Putz., was founded on an immature specimen of *C. suturalis*, Putz.; also that *C. discoidalis*, Blkb., is conspecific with *C. suturalis*. Putzeys placed *C. suturalis* and *C. verticalis* in such positions in his different notes on them as seem to necessitate their being species with the fourth and fifth striæ of the elytra united at the base, but he never recorded this as actually occurring in these species, and he originally placed *C. planiceps*, Putz., similarly, so that this evidence being useless in the one case, may be equally so in the other (*vide* Sloane, these Proceedings, 1896, pp. 169, 204 and 205).

C. dimidiata, Putz., seems to me as if it might have been founded on *C. melanopyga*, Putz. (*vide* Sloane, *ibid.* p. 205).

* Trans. Roy. Soc. South Aust. 1901, p. 113.

C. microdon, Putz., is in my opinion founded on an immature specimen of *C. basalis*, Chaud. (*vide* Sloane, *ibid.* p. 216).

Heterogena-Group.

In my Revision of 1896 separate groups were suggested for *Clivina punctaticeps*, Putz. (and allied species), *C. blackburni*, Sl., *C. olliffi*, Sl., *C. heterogena*, Putz. (and allied species), and *C. bovillæ*, Blkb. This was done with doubt, and, when treating of the *bovillæ*-group the opinion was expressed that all these groups might with advantage be united and treated as merely sections of one large group. This view is now upheld, and the following table of the species known to me as belonging to this more widely extended group is offered.

Table of Species.

- A. Head wide across occiput, eyes not prominent.
- B. Size large (8 mm.); prothorax broader than long (1·8 × 1·9 mm.).....
*C. olliffi*, Sl.
- BB. Size small (5·3 mm.); prothorax longer than broad (1·4 × 1 mm.)
*C. blackburni*, Sl.
- AA. Head narrow behind the prominent eyes.
- C. Lower side of anterior femora swollen.
- d. Prothorax broader than long (punctate on disc).....*C. lobipes*, Sl.
- dd. Prothorax longer than broad.
- e. Form cylindrical, prothorax impunctate.
- f. Prothorax with basal marginal channel wide . . .*C. sulcicollis*, Sl.
- ff. Prothorax with marginal channel narrow } *C. punctaticeps*, Putz.
 } *C. tumidipes*, Sl.
- ee. Upper surface subdepressed; prothorax finely punctate.
- g. Size moderate (6·5 mm.); colour black; head coarsely but not densely punctate between eyes, clypeus with median part hardly separated from its wings..... *C. doddi*, Sl.
- gg. Size small (3·8 mm.); colour ferruginous; head densely punctate between eyes, clypeus with median part distinctly divided from wings *C. cribrifrons*, Sl.
- CC. Lower side of anterior femora with a short triangular tooth about anterior third..... *C. odontomera*, Putz.
- CCC. Lower side of anterior femora not swollen or toothed.
- h. Head with vertex decidedly punctate.
- i. Prothorax longer than broad (prothorax punctate)
*C. heterogena*, Putz.

- ii. Prothorax broader than long.
 - j. Head wide and rounded on sides before eyes, supra-antennal plates wide, depressed; prothorax impunctate.
 - k. Wings of clypeus rounded, feebly divided from supra-antennal plates; intercoxal part of prosternum narrow, bordered on each side *C. bovillæ*, Blkb.
 - kk. Wings of clypeus with angles rounded but marked, strongly divided from supra-antennal plates; intercoxal part of prosternum attenuate anteriorly..... *C. oodnadattæ*, Blkb.
 - jj. Head rather narrow and oblique before eyes, supra-antennal plates narrow, convex; prothorax convex on disc..... *C. flava*, Putz.
- hh. Head with vertex finely and sparsely punctate.
 - l. Colour ferruginous..... *C. australica*, Sl.
 - ll. Bicolourous (elytra black and red)..... *C. atridorsis*, Sl.

CLIVINA DODDI, n.sp.

Elongate, parallel, subdepressed. Piceous-black; under side piceous; legs and antennæ ferruginous. Head coarsely punctate; clypeus with median part widely emarginate, its lateral angles hardly advanced beyond its wings; prothorax longer than broad, parallel on sides, finely punctate on disc; elytra parallel, fourth and fifth striæ confluent at base; anterior femora with posterior margin of lower side decidedly but widely and roundly dilatate; anterior tibiæ 4-dentate, the upper external tooth merely a triangular prominence.

Head moderate; clypeal elevation smooth; front coarsely punctate (not rough) between the wide lateral foveæ; vertex and occiput sparsely punctate; clypeus with median part hardly divided from wings, rather deeply emarginate, the emargination widely truncate in middle and sloping obliquely upwards on each side; wings concave, anterior margin subtruncate, external angle rounded, outer side almost straight; supra-antennal plates rather long, convex, projecting sharply from beyond the clypeal wings in front; facial sulci lightly recurved; eyes prominent. Prothorax subdepressed, longer than broad (1.65 × 1.4 mm.), not perceptibly narrowed anteriorly; disc finely punctate in middle from basal declivity to near apex, smooth near suture and on lateral declivities; anterior margin truncate. Elytra sub-

depressed, long (3.4×1.6 mm.), parallel on sides; abbreviate stria at base of first interstice obsolete (not perceptible behind basal declivity); seventh and eighth interstices at base forming a short posthumeral carina; seventh stria entire. Length 6.5, breadth 1.6 mm.

Hab.—Q.: Townsville (Dodd; in August).

In general appearance closely resembling *C. obliquata*, Putz., but allied to *C. heterogena*, Putz., and *C. punctaticeps*, Putz. The form of the clypeus (intermediate angles much less prominent) and the dilatate lower side of the anterior femora readily separate it from *C. heterogena*. From *C. punctaticeps*, *C. tumidipes*, Sl., and *C. sulcicollis*, Sl., it is differentiated by form more depressed, frontal part of head not closely punctate, anterior femora less strongly lobed beneath (the lower side is more roundly and evenly inflated). From *C. lobipes*, Sl., it differs (apart from colour) by form more elongate; head narrower and less convex, less closely punctate on anterior part; prothorax longer; anterior femora less swollen on lower side. I do not think it can be *C. emarginata*, Putz., because it differs from Putzey's description by colour, vertex not "*antice et dense punctatis*," prothorax not "*lævis*," elytra not "*cylindrica*."

CLIVINA CRIBRIFRONS, n.sp.

Narrow, elongate, subcylindrical, ferruginous. Head with upper surface closely and finely punctulate, median part of clypeus more prominent than and divided from its wings; prothorax not perceptibly narrowed to apex, upper surface minutely shagreened, finely punctulate; elytra with fourth stria joining fifth at base; eighth interstice finely carinate at base and apex; prosternum with intercoxal part small, attenuate anteriorly; anterior femora with posterior margin of lower side lightly and roundly protuberant in middle; anterior tibiæ 4-dentate.

Clypeus with median part bordered, lightly emarginate; its angles lightly but sharply advanced beyond wings, these truncate with outer angles rounded but marked, a small triangular notch between clypeal wings and supra-antennal plates. Pro-

thorax subquadrate (1×0.8 mm.), lightly and widely convex (sub-depressed on disc). Elytra truncate-oval (2×0.9 mm.), parallel on sides, lightly convex; striæ entire, not deep, finely punctate, seventh strongly impressed for whole length. Length 3.8, breadth 0.9 mm.

Hab.—Q. : Townsville (Dodd).

The anterior femora with the posterior margin of the lower side swollen, indicates that the affinity of this species is to *C. punctaticeps*, Putz., from which, and from *C. tumidipes*, its very much smaller size, inter alia, at once distinguishes it. Comparing it with *C. odontomera*, Putz., it is distinguished by size smaller; colour less dark; head less convex, more densely punctate, supra-antennal plates depressed; anterior femora not dentate beneath; prothorax less convex. Mr. Dodd informs me that this small species emits a most powerful and offensive odour.

CLIVINA ODONTOMERA, Putzeys.

Ann. Soc. Ent. Belg. 1868, xi. p. 18.

C. odontomera is allied to *C. punctaticeps*, Putz., and not to *C. heterogena*, Putz., as I formerly thought.* It exactly resembles small specimens of *C. heterogena*, Putz., but may be distinguished at once from that species by the presence of a well-marked striole at base of first elytral interstice, and by the presence of a small sharp triangular tooth on the lower side of the anterior femora a little before the middle. From small specimens of *C. tumidipes*, Sl., it may be separated readily by the anterior femora with the lower side not roundly dilatate but furnished with the small sharp tooth mentioned above. It is the species alluded to in my notes on the varieties of *C. angustula* under "(4)" (*l.c.* p. 190). Length 4.5-5, breadth 1.15-1.3 mm.

Hab.—Q. : Rockhampton (*vide* Castelnau)—N.S.W. : Young District (Sloane; a number of specimens washed out of the muddy margins of a tank dug for watering sheep).

* These Proceedings, xxi. p. 195.

CLIVINA HETEROGENA, Putzeys.

Stett. Ent. Zeit. 1866, xxvii. p. 41; Ann. Soc. Ent. Belg. x. p. 189: *C. angustula*, Putz., Stett. Ent. Zeit. 1866, xxvii. p. 42; Ann. Soc. Ent. Belg. x. p. 190; Sloane, Proc. Linn. Soc. N. S. Wales, 1896, xxi. p. 189: (?) *C. deplanata*, Putz., Ann. Soc. Ent. Belg. x. p. 190.

I now consider *C. angustula*, Putz., synonymous with *C. heterogena*, Putz.; and also think *C. deplanata* must be considered a synonym of *C. angustula*. As showing the variation of colour in *C. heterogena*, specimens taken at Benalla, Victoria, in the flood waters of the Broken River (Aug. 31st, 1901) included a specimen of a uniform piceous black on upper surface, and another coloured like *C. felix*, Sl., (elytra reddish with a large black dorsal plaga on posterior part—this plaga narrowly separated from margin at apex and sides).

Hab.—N.S.W.: Clarence River and Windsor (Lea), Young, Carrathool and Mulwala (Sloane)—Vic.: Lillydale, Ferntree Gully, and Benalla (Sloane).

CLIVINA FLAVA, Putzeys.

Ann. Soc. Ent. Belg. xi. 1868, p. 16.

A single specimen which I refer to *C. flava* has been sent to me by Mr. F. P. Dodd from Townsville, Q. This species has been fully described by Putzeys, and, in my "Revision," I have given a translation of all that is essential in Putzeys' description, so that there is no need to further describe it. The specimen before me is wholly testaceous and apparently immature. Length 5·3, breadth 1·5, prothorax 1·3 × 1·4 mm.

CLIVINA ATRIDORSIS, n.sp.

Rather robust. Piceous red, elytra with five inner interstices black, except towards apex.

Head lævigata, a few fine punctures between eyes; clypeus with median part very lightly emarginate, its angles not marked, hardly advanced or separated from wings, these rounded; supra-

antennal plates convex, bordered externally, divided from clypeal wings by a light sinuosity; eyes prominent. Prothorax convex, as long as broad (1.3×1.3 mm.), evidently narrower towards apex, impunctate. Elytra convex (2.9×1.5 mm.), widest a little behind middle, strongly punctate-striate; fourth stria joining fifth at base, seventh interrupted before apical curve, deeply impressed near apex; interstices convex, eighth carinate near base. Prosternum with intercoxal part attenuate anteriorly. Anterior femora not swollen on lower side; anterior tibiæ tridentate with a slight triangular prominence above upper tooth. Length 5.5-6.2, breadth 1.3-1.5 mm.

Hab.—Q. : Townsville (Dodd).

This species has the clypeus almost intermediate in form between the species of the *australasiae*- and *heterogena*-groups. It resembles *C. vittata*, Sl., from which it is differentiated by colour (the black of the dorsal surface of the elytra not attaining the apex, and the elytral margins red, not black); head narrower, eyes more prominent; prothorax not finely punctate, &c. From *C. heterogena*, Putz., it differs by head narrow, smooth, with only a few sparse punctures, clypeal "wings" smaller, not straight on outer side, hardly at all divided from the supra-antennal plates; prothorax more convex, impunctate, &c.

Australasiae-Group.

In my "Revision" of 1896, probably too much importance was attributed to slight differences in the width of the intercoxal part of the prosternum when forming the chief divisions of this group. I now offer a table treating of the *australasiae*-group as a whole :

- A. Prosternum with episterna more or less rugulose-striolate, not punctate.
- B. Elytra with fourth stria outturned at base and uniting with fifth.
- C. Anterior tibiæ 4-dentate externally. (Intercoxal part of prosternum very narrow or attenuate anteriorly).
- d. Anterior femora wide, posterior margin of lower side rounded.
- e. Elytra wholly black, or striped with red on sides...*C. vittata*, Sl.
- ee. Elytra red with a black discoidal plaga.....*C. sellata*, Putz.
- eee. Elytra wholly testaceous*C. inconspicua* Sl.

- dd. Anterior tibiæ with posterior margin of lower side straight.....
*C. ferruginea*, Putz.
- CC. Anterior tibiæ 3-dentate externally.
- F. Intercoxal part of prosternum attenuate anteriorly.
- g. Black, convex; interstices of elytra convex.... .. {*C. nigra*, Sl.
 {*C. occulta*, Sl.
- gg. Testaceous, depressed; interstices of elytra flat.....*C. nana*, Sl.
- FF. Intercoxal part of prosternum wide or moderately wide anteriorly.
- H. Unicolorous species (black).
- i. ♂ with anterior tibiæ strongly toothed externally, third tooth projecting decidedly from edge of tibiæ, sometimes a slight protuberance above the third tooth.
- j. ♂ with paronychium (inner apical spine) of anterior tibiæ slender, not incrassate.
- k. Size large (8-10·5 mm.)..... .. {*C. australasiæ*, Bohem.
 {*C. lepida*, Putz.
 {*C. dingo*, Sl.
- kk. Size small (6·2-7·5 mm.)
- l. Head wide, front punctulate; anterior tibiæ wide, strongly dentate.....*C. queenslandica*, Sl.
- ll. Head narrow (obliquely angustate before eyes), front smooth, impunctate; anterior tibiæ narrow, external teeth not strongly prominent.....*C. angustipes*, Putz.
- jj. ♂ with paronychium stout, obtuse at apex.
- m. Prosternum without pectoral nodules, intercoxal declivity not transversely sulcate..... ..*C. simulans*, Sl.
- mm. Prosternum with a pectoral ridge, ending at anterior extremity in a nodule, on each side of intercoxal part, basal declivity transversely sulcate....*C. pectonoda*, Sl.
- ii. ♂ with anterior tibiæ obtusely 3-dentate without any trace of a fourth tooth, third tooth not projecting decidedly beyond edge of tibia; paronychium stout, incrassate.
- n. Prosternum with lateral pectoral ridges well developed, nodulose at anterior extremity (basal declivity transversely sulcate)... ..*C. dilutipes*, Putz.
- nn. Prosternum without nodulose pectoral ridges.
- o. Intercoxal basal declivity transversely sulcate..... ..
*C. vagans*, Putz.
- oo. Intercoxal basal declivity not transversely sulcate..... ..
*C. misella*, Sl.
- HH. Bicolorous species.
- p. Head black.
- q. Elytra black with apex red.....*C. leai*, Sl.
- qq. Elytra with basal part reddish.

CLIVINA NIGRA, n.sp.

Robust. Clypeus with anterior margin lightly emarginate (median part not divided from wings); elytra with fourth stria outturned and joining fifth at base, submarginal humeral carina short, eighth interstice carinate near apex; prosternum with episterna finely rugulose-striolate, intercoxal part attenuate anteriorly, transversely sulcate on posterior declivity; anterior tibiæ wide, strongly 3-dentate with a small prominence above upper tooth. Black, legs and antennæ yellowish-piceous.

Head wide, rugulose; supra-antennal plates and wings of clypeus wide; clypeus with anterior margin subtruncate (very lightly and widely emarginate), median part in no way divided from wings; supra-antennal plates strongly rounded and bordered laterally; a decided sinuosity at their point of junction with wings of clypeus; eyes very convex and prominent. Prothorax convex, hardly broader than long (1.7×1.8 mm.), widest towards base, decidedly narrowed to apex; anterior angles obtuse but marked; anterior margin truncate. Elytra truncate-oval (3.1×2 mm.), convex, strongly striate; striæ deep and coarsely punctate near base, becoming lighter and more finely punctate posteriorly, obsolescent and simple on apical declivity, seventh obsolete at beginning of apical curve; interstices convex near base, depressed posteriorly, eighth very narrow and rather carinate at apex. Length 6.2-6.7, breadth 1.85-2 mm.

Hab.—N.S.W.: Mulwala (several specimens washed from the margin of a sand bank on the Murray River, December 8th, 1896; Sloane).

An isolated species readily distinguished from all other Australian species by its small size in combination with the characters noted in the preliminary paragraph of the description above. Evidently most closely allied to *C. occulta*, Sl., a species not now available for reference; but from the description of that species differing by having the anterior margin of the clypeus more evenly emarginate—less truncate in the middle. In appearance it resembles *C. queenslandica*, Sl., and *C. misella*, Sl., but

is at once distinguished from those species by the intercoxal part of the prosternum attenuate anteriorly. It is more robust and convex than *C. queenslandica*, the prothorax shorter, more convex and more strongly narrowed to apex. With *C. misella* it agrees very closely in facies, but the head is more rugulose and much wider before the eyes (similar to that of *C. sellata*, Putz.), the clypeus wider and less deeply and evenly emarginate, the anterior tibiæ much more strongly palmate, &c.

CLIVINA NANA, Sloane.

Proc. Linn. Soc. N.S. Wales xxi. 1896, p. 202.

Hab.—N.S.W. : Tamworth (Lea); Young (*C. nana* occurred to me on the banks of the Burrangong Creek, near Young, amongst débris left after floods, in the months of June and October)—Q. : Townsville (Dodd).

CLIVINA LEPIDA, Putzeys.

Stett. Ent. Zeit. xxvii. 1866, p. 38; Ann. Soc. Ent. Belg. x. 1866, p. 184 : *C. juvenis*, Putzeys, Stett. Ent. Zeit. xxvii. 1866, p. 37.

It seems certainly the case that I was wrong in my identification of *C. lepida*, Putz., in my "Revision" of 1896. I now believe that *C. lepida* is a Victorian species very closely allied to *C. australasie*, Bohem., with which I have hitherto confused it. *C. lepida* has the intercoxal part of the prosternum exactly as in *C. australasie*, but the anterior tibiæ are lighter, with the external teeth shorter and more obtuse—the upper (third) tooth far less noticeable. In the male the anterior tibiæ have the inner apical spine longer and less pointed at apex. The variation and distribution of *C. australasie* and *C. lepida* will require careful study before the certainty of their distinctness is established. (I now feel little doubt but that *C. juvenis*, Putz., was founded on an immature specimen of *C. lepida*). Length 9-10, breadth 2·4-2·6 mm.

Hab.—Vic. : Carrum (French).

CLIVINA DINGO, n.sp.

Allied to *C. australasiæ*, Bohem., by facies, form of head, prosternum and legs. Black, under surface reddish-piceous, antennæ and legs reddish.

Head with front sparsely and finely punctate; occiput transversely punctate between posterior extremities of facial carinæ. Prothorax longer than broad (2.3×2.2 mm.), narrowed to apex, convex; a well developed tubercle closing lateral channel at posterior angle. Elytra convex (4.9×2.5 mm.); fourth stria out-turned and joining fifth at base; seventh impressed for whole length; interstices convex near base, eighth carinate near base. Length 8.9, breadth $2.25-2.5$ mm.

Hab.—Q. : Cairns (Dodd).

Closely allied to *C. australasiæ*, Bohem., of which it seems the northern form, but appearing to me entitled to rank as a distinct species differing by longer prothorax, with a more prominent nodule at each posterior angle; elytra more strongly striate, the sixth and seventh striæ more deeply impressed, and the interstices—particularly the lateral ones—more convex; the prosternal episterna more strongly rugose. From *C. pectonoda*, Sl., which is of similar appearance and size, it may be distinguished by occiput more strongly punctate; prothorax longer; elytral striæ deeper, especially the sixth and seventh for their whole length. I believe, too, that the male is without pectoral nodules.

CLIVINA PECTONODA, n.sp.

♂. Robust, parallel. Head wide, opaque; front opaque, minutely punctulate; occiput with a punctulate subfoveiform impression on each side just within posterior extremity of facial carinæ; clypeus with anterior margin subtruncate (hardly emarginate). Prothorax convex, hardly broader than long (2.1×2.2 mm.), a little narrowed to apex (1.7 mm.); anterior angles marked and distant from head. Elytra a little wider than prothorax (4.8×2.4 mm.); eighth interstice strongly carinate at humeral angle (the carina extending back behind the free base of the seventh interstice). Prosternum with pectoral part pro-

tuberant, bituberculate (a well developed flattened nodule at anterior extremity of each pectoral ridge); pectoral ridges strongly developed; intercoxal part wide anteriorly, lightly sulcate on base. Anterior tibiæ rather narrow, strongly 3-dentate; inner apical spine long, curved, obtuse (not incrassate) at apex. Black; base of mandibles, labrum and legs piceous-red; anterior tibiæ darker than others. [The type (♂) is from Townsville.] Length 8.9.5, breadth 2.2-2.5 mm.

Hab.—Q.: Townsville (Dodd)—N.S.W.: Clarence River (Lea)—N.W. Australia (Macleay Coll.).

Intermediate between *C. australasie*, Bohem., and *C. lepida*, Putz., but rather allied to *C. lepida*, from which it differs by its head wider, more depressed, supra-antennal plates more strongly rounded externally, clypeus less deeply emarginate; prothorax more subquadrate, less narrowed to apex, anterior angles more strongly marked; elytra with humeral carina far more strongly developed and formed from the eighth interstice only without support from seventh; the pectoral nodules nearer together; anterior tibiæ with external teeth more strongly developed, especially the upper one, which is surmounted by a very small prominence, the inner apical spine of male more slender and less obtuse at apex. From *C. australasie* it differs by the presence of the pectoral nodules in the male; prothorax with sides more rounded, anterior angles more marked; anterior tibiæ more slender and less strongly dentate and with inner apical spine longer and less pointed at apex; clypeus less strongly emarginate, &c. From *C. isogona*, Putz., a species I do not know, *C. pectonoda* should differ by colour, and by more strongly dentate anterior tibiæ.

Note.—*C. pectonoda* is the species I have mentioned as *C. australasie* var.* I seem to have confused two species under this heading, with the result that my remark in regard to the variation in the depth of the emargination of the clypeus is misleading. Four of the specimens (♂ and ♀) from N.W. Australia

* Proc. Linn. Soc. N.S. Wales, 1896, xxi. p. 277.

now before me have the clypeus as in *C. pectonoda*, and one (apparently ♂) has the clypeus deeply and widely emarginate, the "wings" more rounded and more strongly divided from the supra-antennal plates; the intercoxal part of the prosternum without pectoral ridges or nodules and non-sulcate on posterior declivity; anterior tibiæ wider and more strongly 3-dentate than in *C. pectonoda* ♀. I believe it to be an undescribed species, but am not prepared to deal with it from the unique specimen I possess.

CLIVINA DILUTIPES, Putzeys.

Ann Soc. Ent. Belg. 1868, xi. p. 12: *C. lepida*, Sloane (not Putzeys), Proc. Linn. Soc. N. S. Wales, 1896, xxi. p. 221: *C. sydneyensis*, Sloane, *l.c.* p. 222.

I now feel confident that the species treated of under the name of *C. lepida*, Putz., in my "Revision" of 1896, is not that species, but is *C. dilutipes*, Putz. I have received specimens of this species from the Rev. Thos. Blackburn under the name of *C. dilutipes*, Putz., and now support his identification. The *Clivina* referred to at the end of my description of *C. vagans*,* as found at Swan Hill, Victoria (on the Murray River), should, I believe, be referred to *C. dilutipes*. I now place *C. sydneyensis*, Sl., under *C. dilutipes*; it is a slightly differentiated form, but I doubt if it is sufficiently distinct to be recognised as a named variety.

Hab.—New South Wales and Victoria.

Var. *C. victoriae*, var. nov. (= *C. vagans*, Sloane, these Proceedings, xxi. 1896, p. 219). This is the form of *C. dilutipes* found about Melbourne; it is distinguished by the dark colour of the legs, and seems to merit a varietal name.

Hab.—Vic.: Lillydale.

Note.—All the forms treated of above under *C. dilutipes* have in the male a strongly developed ridge on each side of the pectoral part of the prosternum ending at anterior extremity in a small tubercle.

* These Proceedings, xxi. 1896, p. 221.

CLIVINA VAGANS, Putzeys.

Stett. Ent. Zeit. 1866, xxvii. p. 38; Ann. Soc. Belg. 1867, x. p. 185.

C. vagans, from Putzeys' description, in comparison with *C. australasie*, Bohem., has eyes less prominent; prothorax longer, more rounded on sides, basal curve shorter; elytra more narrowed to base, more ampliate behind the middle, punctures of striae more marked, interstices flatter; external teeth of anterior tibiae very small and obtuse. Length 6.5 mm. (Prothorax 1.25 × 1.2 mm.; elytra 3.65 × 1.7 mm.).

Hab.—Tasmania.

A specimen (♂) with these characters has been sent to me by the Rev. Thos. Blackburn as from Tasmania* which, compared with *C. dilutipes*, Putz., var. *victoriae*, Sl. (♂) (= *C. vagans* of Sloane's "Revision") presents differences as under:—Size smaller; head smaller, eyes less prominent, clypeus more deeply emarginate; prosternum not bituberculate (pectoral ridges short, not ending in front in small tubercles). The ♂ of *C. vagans* can at once be distinguished from the ♀ of *C. victoriae* (which is without the pectoral tubercles) by the long obtuse inner terminal spur and much smaller external teeth of the anterior tibiae.

Note.—*C. lepida* var. *tasmaniensis*, Sl., (these Proceedings, xxi. 1896, p. 222) is evidently conspecific with *C. vagans*, Putzeys. I have said (*l.c.*) that H. W. Bates considered a Tasmanian species to be *C. vagans*, Putz. This is an error resulting from quoting from memory. Bates does not attribute a name to the *Clivina* he mentions as probably a small form of *C. australasie*. †

CLIVINA MISELLA, n.sp.

C. dilutipes, Sloane (non Putzeys), Proc. Linn. Soc. N.S. Wales, 1896, xxi. p. 216.

* This is the specimen referred to by me under *C. vagans* (these Proceedings, xxi. 1896, p. 220).

† Cist. Ent. ii. 1878, p. 325.

The species to which I formerly applied the name *C. dilutipes*, Putz., is evidently not that species; it requires a name, and *C. misella* is now suggested, my former description being sufficient.

From *C. vagans*, Putz., (as identified by me in the present paper) it differs by head larger, eyes more prominent, elytra more strongly striate, prosternum with intercoxal declivity not sulcate on base, &c. From *C. dilutipes* var. *victoriæ*, (*vide supra*) it differs by prosternum without pectoral ridges, intercoxal declivity not sulcate, &c.

CLIVINA PALLIDICEPS, n. sp.

Clypeus with anterior margin lightly, widely and evenly emarginate; elytra with fourth stria joining fifth at base; prosternum with episterna rugulose-striolate, intercoxal part wide anteriorly, not transversely sulcate on base; anterior tibiæ wide, strongly tridentate, with a rather strong prominence above the upper tooth. Head testaceous-red, becoming piceous near eyes; prothorax black; elytra black with a wide testaceous vitta on each lateral declivity (the four inner interstices, the marginal channel and border—except at humeral angle—black; interstices 6-8 testaceous, fifth testaceous at base, becoming black posteriorly, basal declivity testaceous on each side, black only at base of two inner interstices of each elytron); inflexed margin black, testaceous near humeral angles; under surface of prothorax piceous, of body black; legs—four posterior pale yellow, anterior pair yellow, coxæ and apex of femora rather piceous, tibiæ darker than femora.

Head wide, depressed between facial sulci; eyes large, convex, prominent. Prothorax transversely rugulose-striolate (a few punctures among the striolæ), broader than long (1.2 × 1.4 mm.); sides subparallel, decidedly and roundly narrowed to apex before anterior marginal puncture; anterior angles widely obtuse; posterior angles marked; border wide on sides, very narrow on basal curve; posterior marginal puncture foveiform; basal curve short. Elytra truncate-oval (2.7 × 1.65 mm.), subdepressed (convexity of disc wide and even); base wide, truncate; striæ deep, punctate. Length 5.3, breadth 1.65 mm.

Hab.—N.S.W. : Mulwala (one specimen occurred to me washed from the margin of the Murray River, December 5th, 1896).

A distinct species, differentiated at once from all other Australian members of the genus by its colour; it is allied to *C. vittata*, Sl., but differs by colour; facies less convex; eyes more prominent; prothorax less convex, shorter, more parallel on sides, &c.

CLIVINA CYLINDRIPENNIS, n.sp.

Narrow, elongate, cylindrical. Head convex, punctulate, clypeus with median part not divided from wings; prothorax longer than broad (1.7×1.35 mm); elytra cylindrical, coarsely punctate-striate, posthumeral submarginal carina obsolete, fourth stria free at base; prosternum with intercoxal part narrow anteriorly, sulcate on base; anterior tibiæ 4-dentate. Ferruginous (prothorax subpiceous, elytra reddish).

Head convex; upper surface nitid; vertex with a punctulate fovea between eyes; occiput punctate between posterior extremities of facial carinæ; clypeus smooth, anterior margin widely emarginate in middle, not divided from "wings"—these subtruncate; supra-antennal plates subdepressed, projecting sharply in front from clypeal wings, external margin rather explanate and reflexed; eyes convex, not prominent. Prothorax nitid (one specimen with derm minutely punctate), convex, lightly narrowed anteriorly; anterior margin truncate, angles distant from head, marked; median line strongly impressed. Elytra narrow (3.25×1.65 mm.), very convex; base strongly and abruptly declivous; striæ deep and coarsely punctate towards base, shallow and finely punctate towards apex, seventh strongly impressed; interstices convex between the coarsely punctate part of striæ. Anterior femora wide, posterior margin of lower side rounded as in *C. sellata*, Putz. Length 6, breadth 1.65 mm.

Hab.—N.W.A. : Carnot Bay (Colls. French and Sloane). Numerous specimens were sent to me by Mr. French as from Carnot Bay, North-West Australia.

An isolated species, which, amongst the Australian species known to me, most resembles *C. sellata*, Putz., from which it

differs decidedly by its larger size; more elongate parallel and convex form; elytra with fourth stria not joining fifth at base, posthumeral carina obsolete, interstices more convex, striæ deeper and more strongly punctate. It is the most strongly punctate of the *australasie*-group known to me. From *C. nigra*, Sl., it differs greatly by colour, smaller size, narrower and more convex form, prothorax longer than broad, elytra narrower, far more cylindrical, eyes less protuberant, head less rugulose and more punctate, upper tooth (fourth) of anterior tibiæ more strongly developed. Judging by the description of *C. equalis*, Blkb., it cannot be that species owing to its prothorax longer than broad, elytra with fourth stria free at base, no abbreviate striole at base of first interstice.

CLIVINA PROCERA, Putzeys.

Stett. Ent. Zeit. xxvii. 1866, p. 34; Ann. Soc. Ent. Belg. x. 1866, p. 180; Sloane, Proc. Linn. Soc. N. S. Wales, xxi. 1896, p. 228: *Scolyptus procerus*, Putzeys, Ann. Soc. Ent. Belg. xi. p. 7.

I think the name *C. procera* must be applied to the southern form, while the form from tropical Australia should receive the name *C. obscuripes*, Blkb. I have confused these two in the list of localities given in my "Revision," but my description applies to *C. procera*, being founded on specimens from near Urana, N.S.W. *C. prominens*, Putz., remains still unidentified by me.

CLIVINA OBSCURIPES, Blkb.

Scolyptus obscuripes, Blackburn, Proc. Linn. Soc. N.S. Wales (2) iv. 1889, p. 1247.

This is a tropical species closely allied to *C. procera*, Putz., but differing by facies a little more robust; prothorax more quadrate (sides less rounded and less narrowed in front); striæ of elytra a little more strongly impressed and the interstices a little more convex; metathorax a little shorter (but longer than posterior coxæ), its episterna a little shorter and proportionately a little wider behind; the mentum seems more rugulose, more rounded laterally, sinus more oblique, median tooth more prominent.

Hab.—Northern Territory: Burrundie (Dr. Bovill; Coll. Blackburn)—Q. : Burketown District and Dawson River (Coll. Sloane); Port Darwin (large form or variety; Colls. Macleay and Sloane).

Note.—*C. obscuripes* is wrongly entered in Mr. Masters' Catalogue, Supplement, Part i. 1895, as *Scolyptus obscuripennis*.

CLIVINA ELEGANS, Putzeys.

Mém. Liège, 1853, xviii. p. 44; Stett. Ent. Zeit. 1866; xxvii. p. 36; Ann. Soc. Ent. Belg. x. p. 179; Sloane, Proc. Linn. Soc. N.S. Wales, 1896, xxi. p. 231 : *Ceratoglossa foveiceps*, Macleay, Trans. Ent. Soc. N.S. Wales, 1863, i. p. 73 : *Scolyptus oblongus*, Putz., Ann. Soc. Ent. Belg. 1873, xvi. p. 10.

I now think *C. elegans*, Putz., must be taken to include *Ceratoglossa foveiceps*, Macl., and *Scolyptus oblongus*, Putz.

CLIVINA ROBUSTA, n.sp.

Robust, convex. Black; legs piceous, tibiæ and tarsi reddish-piceous; antennæ reddish. Head, striation of elytra, prosternum, metasternum with episterna, and legs as in *C. elegans*, Putzeys.

♂. Prothorax hardly longer than broad (4.4 × 4.3 mm.), widest behind middle, strongly narrowed to apex (3.2 mm.), lightly convex; apex emarginate; anterior angles distant from head, marked but obtuse. Elytra oval (9.5 × 5 mm.), convex; sides rounded; striæ narrow, crenulate at bottom; interstices convex near base, hardly convex near apex, third 5- or 6-punctate—posterior puncture near apex of third striæ. Length 17, breadth 5 mm.

Hab.—N.S.W. : Gosford (H. J. Carter; Colls. Carter and Sloane).

This may prove to be a form or variety of *C. elegans*, Putzeys, but, unless further knowledge proves this to be the case, it seems to require a separate name. It has the head transversely impressed behind eyes, and the metasternal episterna short as in *C. elegans*, but differs conspicuously from that species by size larger, form more robust and convex; prothorax wider and more convex, much more strongly ampliate on each side of peduncle

and more strongly narrowed to apex; elytra wider and more convex. The anterior tibiæ are stout, 3-dentate; the upper internal spur slender and spiniform, the inner apical spur very thick, long and obtuse at apex.

CLIVINA OBLIQUICOLLIS, n.sp.

Robust; piceous-black, under surface reddish-piceous, legs and antennæ reddish. Mandibles short, clypeus as in *C. procera*, Putz. Peduncle not punctate on lower side or in lateral cavities.

Head with eyes hemispherical, very prominent; clypeus with median part deeply truncate-emarginate, its wings foveate and obtusely advanced. Prothorax smooth, of equal length and breadth (3.2 mm.), widest about one-fourth before posterior angles, roundly narrowed to apex (2.3 mm.); posterior angles distinctly tuberculate; median line well marked; an elongate linear distinct basal impression on each side of disc between median line and posterior angles. Elytra truncate-oval (7.5 × 3.75 mm.), strongly striate; striæ narrow, crenulate, fourth outturned and joining fifth at base, seventh lightly impressed; interstices convex near base, depressed towards apex, seventh and eighth uniting at base to form a short upturned carina. Prosternum with intercoxal part very wide and bordered on each side anteriorly, transversely sulcate on base; episterna nitid, with faint transverse wavy striae. Metasternum shorter than in *C. procera*, but longer between coxæ than the length of the posterior coxæ; episterna of moderate length, a little shorter than in *C. procera*, and longer than in *C. nyctosyloides*, Putz. Legs as in *C. procera*, but intermediate tibiæ narrow and with spur of outer side smaller and nearer apex. Length 12-13, breadth 3.35-4 mm.

Hab.—N.W.A. : Carnot Bay (Colls. French and Sloane).

Given to me by Mr. C. French.

The position of this species is between *C. procera* and *C. nyctosyloides*, Putz.; the head and smooth lateral concavities of the peduncle resemble those of *C. nyctosyloides*, but the prothorax is much less strongly narrowed to apex and the elytral striæ are much finer and less coarsely punctate; it resembles *C.*

abbreviata, Putz., but the metathorax is longer between the coxæ and has much more elongate episterna. From *C. procera* and *C. obscuripes*, Blkb., it differs by head narrower between the more prominent eyes; prothorax strongly narrowed to apex; elytra more convex, more strongly declivous to apex, posterior puncture further from apex; puncturation of under side of peduncle obsolete; prosternum—with episterna—more convex and less rugulose, intercoxal declivity transversely sulcate, &c.

Note.—The description I have given is founded on the male. The female is broader, with prothorax wider and more strongly narrowed to apex (3.1 × 3.3 mm.), elytra wider. Length 13, breadth 4 mm.

CLIVINA NYCTOSYLOIDES, Putzeys.

Ann. Soc. Ent. Belg. xi. 1868, p. 10; var. ? *C. interstitialis*, Sl., Proc. Linn. Soc. N.S. Wales, xxi. 1896, p. 241.

C. interstitialis, Sl., I now think must be taken to be not more than a variety of *C. nyctosyloides*; this name was preoccupied in the genus *Clivina* when I used it;* but I do not now propose to distinguish my *C. interstitialis* by a distinctive name.

Hab.—Q. : Rockhampton (*vide* Putzeys), Townsville (Dodd).

Var. A. (= *C. interstitialis*, Sl.). *Hab*.—Q. : Cooktown (*vide* French).

CLIVINA OVALIPENNIS, n.sp.

C. ovipennis, Sl., Proc. Linn. Soc. N.S. Wales, xxi. 1896, p. 244.

When I used the name *C. ovipennis* for an Australian species I did not notice that it was already in use for a species from the Caspian Sea, viz., *C. ovipennis*, Chaudoir. My description under the preoccupied name *C. ovipennis* is sufficient.

* *C. interstitialis*, Kolbe, Berl. Ent. Zeit. xxvii. p. 18 (1883); Mexico.